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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,782	09/11/2003	Liat Mintz	28238	6045

26691 7590 02/25/2005

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WILMINGTON, DE 19899-0951

EXAMINER

DUNSTON, JENNIFER ANN

ART UNIT PAPER NUMBER

1636

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/659,782	<b>Applicant(s)</b> MINTZ, LIAT	
	<b>Examiner</b> Jennifer Dunston	<b>Art Unit</b> 1636	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-46 is/are pending in the application.
- 4a) Of the above claim(s) 25-30 and 35-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Sequence Alignments</u> .              |

### **DETAILED ACTION**

Receipt is acknowledged of an amendment, filed 8/27/2004, in which the specification was amended, claims 1-24 were cancelled, and claims 25-46 were added.

#### ***Election/Restrictions***

Applicant's election with traverse of Group II (claims 31-34) and SEQ ID NO: 32 in the reply filed on 12/29/2004 is acknowledged. The traversal is on the ground(s) that the Examiner has unreasonably separated the sequences in the Markush group of claim 32. This is not found persuasive because the response does not address why proteins encoded by unrelated genes should be searched together or why alternative splice variants of proteins encoded by the same genomic locus should be searched together. Further, it would impose a serious search burden to search the commercial sequence databases for all of the recited sequences.

The requirement is still deemed proper and is therefore made FINAL.

Regarding claim 31, the specification indicates that SEQ ID NO: 11 is a nucleic acid sequence that encodes the protein of SEQ ID NO: 32 (e.g. Table 1). Therefore, for examination purposes, claim 31 has been interpreted as reading on the isolated nucleic acid sequence of SEQ ID NO: 11.

An examination of claims 31-34, as they read on SEQ ID NO: 32, follows.

***Specification***

The disclosure is objected to because of the following informalities: Table 1 indicates that SEQ ID NO: 32 is a variant of Ghrelin “with 117 amino acids,” however, the paper copy of the sequence listing indicates that SEQ ID NO: 32 is 116 amino acids in length.

Appropriate correction is required.

***Claim Objections***

Claims 31-34 are objected to because of the following informalities: the claims read on non-elected inventions.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 31-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 31 is drawn to “an amino acid sequence”, which can be interpreted to read on a product of nature such as a protein produced within the cells of a human being. It would be remedial to insert the term “isolated” in connection with the amino acid sequence to indicate that the amino acid sequence is a product not found in nature.

Claims 31-34 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

When determining whether the utility of an invention has been described, one determines whether applicant has described a well-established utility. If not, it is determined whether applicant has made an assertion of specific and substantial utility. In contrast to general utility, a specific utility will be specific to the claimed subject matter. A substantial utility defines a real world utility of the invention, and utilities that require or constitute carrying out further research to identify or reasonably confirm a “real world” context use are not substantial utility (see utility guidelines, Federal Register January 5, 2001, Vol. 66, No. 5, pages 1092-1099).

Claims 31-34 are drawn to the amino acid sequence of Ghrelin Variant 2, a naturally occurring splice variant transcribed from the human Ghrelin locus. The protein is encoded by the nucleic acid sequence of SEQ ID NO: 11 and the amino acid sequence of the variant protein is described in SEQ ID NO: 32. Further, the claims are drawn to peptides comprising at least 10 or 10-20 contiguous amino acids of the Ghrelin Variant 2 protein.

The disclosed utilities for the amino acid sequence of the instant invention are (i) the treatment of obesity and/or diabetes (e.g. pages 50-51), and (ii) the production of antibodies (e.g. page 52, lines 10-23). The specification asserts that the amino acid sequence of SEQ ID NO: 32 is encoded by SEQ ID NO: 11, which is an “obesity and/or diabetes nucleic acid sequence.” While the specification asserts that the polypeptide of SEQ ID NO: 32 (i.e. Ghrelin Variant 2) can be used to treat diabetes and/or obesity, the relationship between Ghrelin Variant 2 and diabetes and/or obesity is not clearly described in the specification. The specification does not describe the relationship between the Ghrelin Variant 2 and any cognate receptor. Therefore, it is not clear whether the Ghrelin Variant 2 protein is intended to act as an agonist or antagonist of physiological pathways related to diabetes and/or obesity. Further, there is no art of record that

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discloses the function of the Ghrelin Variant 2 protein. Therefore, the asserted utility of the treatment of diabetes and/or obesity with the Ghrelin Variant 2 protein is not supported by a well established utility. Moreover, the asserted utility of treatment of obesity and/or diabetes is not substantial because the function and effects of the protein are not known. Further experimentation would be required to determine a “real world” context for the Ghrelin Variant 2 protein in the treatment of diabetes and/or obesity. Raising antibodies is not a specific utility because the asserted utility is not specific to Ghrelin Variant 2 in that any protein can be used to make an antibody. Further, the specification does not provide a substantial utility for the antibodies raised against Ghrelin Variant 2 protein or fragments thereof. Without knowing how the Ghrelin Variant 2 protein functions, one would not be able to predict the effect of administering antibodies against Ghrelin Variant 2 protein to a patient with diabetes and/or obesity. Therefore, further experimentation would be required to determine a “real world” context for the antibodies against Ghrelin Variant 2 protein.

Thus, the asserted utilities for Ghrelin Variant 2 protein are not specific and substantial. The asserted utilities require carrying out further research to identify or reasonably confirm a “real world” context of use.

Claims 31-34 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Gualillo et al (Endocrinology, Vol. 142, No. 2, pages 788-794, 2001; see the entire reference).

Gualillo et al teach Human placenta comprising Ghrelin transcript and Ghrelin protein (e.g. Figures 1 and 2).

The placenta taught by Gualillo et al reads on the claimed invention, because the cells of the placenta should inherently transcribe and translate all possible splice variants of Ghrelin.

The teachings of Gualillo et al read on the claimed invention because Gualillo et al teach a placenta comprising Ghrelin protein. Once transcription occurs, a portion of the hnRNA will inherently be spliced to form the claimed variant. Further, the cells will necessarily translate the splice variant. As disclosed in the instant specification, the amino acid sequence is a splice variant of human Ghrelin (e.g. Table 1). Thus, the placenta taught by Gualillo et al inherently comprises the amino acid sequence of SEQ ID NO: 32, which is a peptide comprising 10-20 contiguous amino acids of SEQ ID NO: 32. Therefore, absent any evidence to the contrary, the skilled artisan would necessarily expect that the placenta, as taught by Gualillo, would comprise the claimed amino acid sequences.

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Claim 31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Sheppard et al (US Patent No. 6,291,653; see the entire reference).

Claim 31 is drawn to “an amino acid sequence coded by the isolated nucleic acid sequence of claim 25.” The nucleic acid sequence of SEQ ID NO: 11 reads on the elected invention of the amino acid sequence of SEQ ID NO: 32. Claim 32 is drawn to the amino acid sequence of claim 31, wherein said amino acid sequence comprises a sequence of SEQ ID NO: 32. Claim 33 is drawn to a peptide comprising at least a 10 contiguous amino acid segment of the amino acid sequence of SEQ ID NO: 32. Claim 34 is drawn to a peptide comprising 10-20 contiguous amino acids of the amino acid sequence of SEQ ID NO: 32. The online biology dictionary ([www.biology-online.org](http://www.biology-online.org)) defines the term “peptide” as a “compound of two or more amino acids where the alpha carboxyl group of one is bound to the alpha amino group of another.”

Sheppard et al teach an amino acid sequence coded by the isolated nucleic acid sequence of instant SEQ ID NO: 11 (see attached alignment #1). For example, amino acids 1-20 are an amino acid sequence encoded by bases 112-171 of instant SEQ ID NO: 11. Further, the sequence of SEQ ID NO: 2 comprises an amino acid sequence of instant SEQ ID NO: 32 (see attached alignment #2). Sheppard et al teach a peptide of SEQ ID NO: 2 comprising 20 contiguous amino acids identical to amino acids 1-20 of instant SEQ ID NO: 32.

### ***Conclusion***

No claims are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Dunston whose telephone number is 571-272-2916. The examiner can normally be reached on M-F, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel can be reached on 571-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR, <http://pair-direct.uspto.gov>) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Jennifer Dunston  
Examiner  
Art Unit 1636

jad

  
TERRY MCKELVEY  
PRIMARY EXAMINER

Alignment # 1

## ALIGNMENTS

Wed Feb 2 10:18:27 2005

us-10-659-7

## INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:  
LENGTH: 117 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
FRAGMENT TYPE: internal  
US-09-046-479-2

## Alignment Scores:

Pred. No.:	1,57e-25	Length:	117
Score:	326.00	Matches:	74
Percent Similarity:	53.19%	Conservative:	1
Best Local Similarity:	52.48%	Mismatches:	0
Query Match:	31.65%	Indels:	66
DB:	3	Gaps:	1

US-10-659-782A-11 (1-579) x US-09-046-479-2 (1-117)

```
QY 112 ATGCCCTCCCGAGGACCTCTGACGCTCTGCTCCGCGCATGCTCTGCTGACTTG 171
DB 1 MetProSerProGlyThrValCysSerLeuLeuLeuGlyMetLeuTriPLeuAspLeu 20
QY 172 GCCATGGAGGCTCCAGCTCTGAGCCCTGAACACAGAGTCCAGGTGAGACTTCCC 231
DB 21 AlaMetAlaGlySerSerPheLeuSerProGluHisGlnArgValGln--Gln----- 37
QY 232 CACAAAGCCCAACATGTTGTTCCAGCCCTGCCACTTAGCAACACAGCTGTGAGCTGAG 291
DB 37 ----- 37
QY 292 CAGCAGCCGCACTCTGCGCTTCACTCTTCTCCAGACACAAAGACTGCGGTCTGAC 351
DB 37 ----- 37
QY 352 CTCACGTTTCTGAAGACATGGGGCTTAGAGTCTAAACAGACTGTTCCCTTCC 411
DB 37 ----- 37
QY 412 AGCAGAGAAAGAGTGAAGAAACCAACGACGCTGAGCCCGGAGCTTACAGAGCT 471
DB 38 -----ArglySerGlySerLysProAlaLysLeuGlnProAlaLeuAlaGlyT 56
QY 472 GGTCTCCGCGGAGAGTGAAGTCAACGAGGGGAGAGATGATGAAGTCCGG 530
DB 56 rPLeuArgProGluAspGlyGlyGlnAlaGluGlyAlaGluAspGluLeuGluValArg 75
```

## RESULT 2

US-08-822-897C-2  
Sequence 2, Application US/08822897C  
Patent No. 6380158

## GENERAL INFORMATION:

APPLICANT: Sheppard, Paul O.  
TITLE OF INVENTION: MOTILIN HOMOLOGS  
NUMBER OF SEQUENCES: 7  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Zymogenetics, Inc.  
STREET: 1201 Eastlake Avenue East  
CITY: Seattle  
STATE: WA  
COUNTRY: USA

ZIP: 98102  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/822,897C  
FILING DATE:  
CLASSIFICATION: 536

RESULT 1  
US-09-046-479-2  
Sequence 2, Application US/09046479  
Patent No. 6291653  
GENERAL INFORMATION:  
APPLICANT: Sheppard, Paul O.  
TITLE OF INVENTION: MOTILIN HOMOLOGS  
NUMBER OF SEQUENCES: 7  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Zymogenetics, Inc.  
STREET: 1201 Eastlake Avenue East  
CITY: Seattle  
STATE: WA  
COUNTRY: USA  
ZIP: 98102  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq for Windows Version 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/046,479  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Sawislak, Deborah A  
REGISTRATION NUMBER: 37,438  
REFERENCE/DOCKET NUMBER: 97-04  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 206-442-6672  
TELEFAX: 206-442-6678  
TELEX:

Alignment # 2

ALIGNMENTS

RESULT 1  
US-09-046-479-2  
Sequence 2, Application US/09046479

PATENT No. 6291653  
GENERAL INFORMATION:

APPLICANT: Sheppard, Paul O.  
APPLICANT: Deisher, Theresa A.  
TITLE OF INVENTION: MOTILIN HOMOLOGS

NUMBER OF SEQUENCES: 7  
CORRESPONDENCE ADDRESS:

ADDRESSEE: ZymoGenetics, Inc.  
STREET: 1201 Eastlake Avenue East  
CITY: Seattle  
STATE: WA

COUNTRY: USA  
ZIP: 98102

COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS

SOFTWARE: FASTSEQ for Windows Version 2.0  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/046.479  
FILING DATE:

CLASSIFICATION:  
PRIOR APPLICATION DATA:

ATTORNEY/AGENT INFORMATION:  
FILING DATE:

NAME: Sawislak, Deborah A.  
REGISTRATION NUMBER: 37,438  
REFERENCE/DOCKET NUMBER: 97-04

TELECOMMUNICATION INFORMATION:  
TELEPHONE: 206-442-6672  
TELEFAX: 206-442-6678

TELEX:  
INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:  
LENGTH: 117 amino acids  
TYPE: amino acid

STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein

FRAGMENT TYPE: internal  
US-09-046-479-2

Query Match 32.1%; Score 198; DB 3; Length 117;  
Best Local Similarity 88.6%; Pred. No. 6.3e-17;  
Matches 39; Conservative 0; Mismatches 5; Indels 0; Gaps 0;

QY 1 MSPPTVCILLGLMTLMDLMAAGSSFLSPHQRVQVRPPHKAP 44  
DB 1 MSPPTVCILLGLMTLMDLMAAGSSFLSPHQRVQVRPPHKAP 44

RESULT 2  
US-08-822-897C-2  
Sequence 2, Application US/08822897C

PATENT No. 6380158  
GENERAL INFORMATION:

APPLICANT: Sheppard, Paul O.  
APPLICANT: Deisher, Theresa A.  
TITLE OF INVENTION: MOTILIN HOMOLOGS

NUMBER OF SEQUENCES: 7  
CORRESPONDENCE ADDRESS:

ADDRESSEE: ZymoGenetics, Inc.  
STREET: 1201 Eastlake Avenue East  
CITY: Seattle  
STATE: WA

COUNTRY: USA  
ZIP: 98102

COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS

SOFTWARE: FASTSEQ for Windows Version 2.0  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/822.897C  
FILING DATE:

CLASSIFICATION: 536  
PRIOR APPLICATION DATA:

APPLICATION NUMBER:  
FILING DATE:

ATTORNEY/AGENT INFORMATION:  
NAME: Sawislak, Deborah A.  
REGISTRATION NUMBER: 37,438

REFERENCE/DOCKET NUMBER: 97-04  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 206-442-6672  
TELEFAX: 206-442-6678

TELEX:  
INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:  
LENGTH: 117 amino acids  
TYPE: amino acid

STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein

FRAGMENT TYPE: internal  
US-08-822-897C-2

Query Match 32.1%; Score 198; DB 3; Length 117;  
Best Local Similarity 88.6%; Pred. No. 6.3e-17;  
Matches 39; Conservative 0; Mismatches 5; Indels 0; Gaps 0;

QY 1 MSPPTVCILLGLMTLMDLMAAGSSFLSPHQRVQVRPPHKAP 44  
DB 1 MSPPTVCILLGLMTLMDLMAAGSSFLSPHQRVQVRPPHKAP 44

RESULT 3  
US-09-608-810A-4  
Sequence 4, Application US/09608810A

PATENT No. 6420521  
GENERAL INFORMATION:

APPLICANT: Sheppard, Paul O.  
APPLICANT: Jaspers, Stephen R.  
APPLICANT: Deisher, Theresa A.

APPLICANT: Bishop, Paul D.  
TITLE OF INVENTION: SGIP PEPTIDES  
FILE REFERENCE: 99-51

CURRENT APPLICATION NUMBER: US/09/608.810A  
CURRENT FILING DATE: 2000-06-30